Ford Pickup Box Removal Guidance

Table of Contents

Introduction 1
PART I - Models Available for Pickup Box Removal 1
PART II - Information Concerning United States and Canada Safety Standards 2
PART III - Information Concerning Exhaust and Evaporative Emissions Requirements 5
A. US Environmental Protection Agency Guidance 5
B. California Air Resources Board Guidance 5
C. Ford Guidance 5
PART IV – Information Concerning Body and Electrical System Modifications 6
Change Control 6

Introduction

The following information is presented in three parts for vehicle alterers who intend to remove the pickup box from certain Ford pickup trucks and install aftermarket second unit bodies on those vehicles.

Part I details those Ford pickup models that may be altered by removal of the pickup box and installation of an aftermarket second unit body and indicates where specific questions should be directed.

Part II provides information concerning the obligations and responsibilities of vehicle alterers with respect to United States and Canada Motor Vehicle Safety Standards (F/CMVSS).

Part III provides information for vehicle alterers with respect to United States and California exhaust and evaporative emissions.

Vehicle alterers who intend to modify vehicles, as described above, may use the information and conditions provided herein to assist them in determining whether modified vehicles comply with applicable regulatory requirements.

PART I - Models Available for Pickup Box Removal

Super Duty Pickups listed in Table 1 may be altered by removing the pickup box and installing an aftermarket Second Unit Body (SUB). See the latest version of SVE Bulletin Q-356 for details on trim level / equipment restrictions and electrical system modifications (available on the Ford Body Builders Advisory Service (BBAS) website https://fordbbas.com, under "Bulletins").

NOTE: Ranger pickups are no longer supported for box removal starting with the 2024 Model Year.

It is the responsibility of the vehicle alterer to assure compliance and certification of the altered vehicle to all applicable requirements. Specific questions concerning compliance and/or certification to safety standards, emissions and fuel economy regulations should be directed to the vehicle alterer's legal counsel or the United States National Highway Traffic Safety Administration (FMVSS and Federal fuel economy standards and requirements), the Canada Ministry of Transport (CMVSS, emissions, and noise regulations), the Canada Department of Communications (Canadian RFI regulations), the United States Environmental Protection Agency (EPA) (United States emission requirements) or the California Air Resources Board (California emissions and fuel vapor recovery requirements), and the vehicle noise emission control authorities, if any, in the state and locality in which the vehicle is sold.

If you have technical, product-related questions concerning some aspect of the vehicle alteration, a representative of Ford Motor Company will be happy to talk with you. Please contact your regional sales office or email the Ford Body Builder Advisory Service (BBAS) by navigating to https://fordbbas.com and selecting "Contact Us".

PART II - Information Concerning United States and Canada Safety Standards

The vehicle alterer is responsible for determining continued conformity of the altered vehicle with F/CMVSS under 49 C.F.R. Part 567 and pursuant to Section 9 of the Canadian Motor Vehicles Safety Regulations in Canada. As outlined in these requirements, the vehicle alterer must ascertain which F/CMVSS are affected by the alteration, and subsequently affix a label that certifies that the altered vehicle conforms to all affected safety standards. In the information that follows, Ford has endeavored to provide sufficient guidelines to the vehicle alterer for certifying that the vehicle conforms to all F/CMVSS affected by the vehicle alteration.

Federal and Canadian Motor Vehicle Safety Standards Compliance

Conformity to the following FMVSS and CMVSS are affected by removal of the pickup box and rear bumper, and installation of an aftermarket second unit body:

F/CMVSS 105 – Hydraulic and Electric Brake Systems

F/CMVSS 108 – Lamps, Reflective Devices, and Associated Equipment

F/CMVSS 111 – Rear Visibility

F/CMVSS 126(1) – Electronic Stability Control Systems

F/CMVSS 208 – Occupant Crash Protection

F/CMVSS 212(1) – Windshield Mounting

F/CMVSS 219(1) – Windshield Zone Intrusion

F/CMVSS 301(1) – Fuel System Integrity

(1) Applicable to vehicles with a GVWR of 4536 kg (10,000 lb.) or less.

In the case of a Ford pickup truck listed in Table 1, the vehicle, as altered, will continue to conform to the requirements of the previously listed safety standards provided the vehicle is altered only by the removal of the pickup box (including optional equipment attached to the pickup box) and rear bumper (optional), and the installation of an aftermarket Second Unit Body (SUB) in accordance with the following conditions:

1. The following lighting components must be designed and installed on the altered vehicle in accordance with the requirements of F/CMVSS No. 108, Lamps, Reflective Devices, and Associated Equipment:

   - Tail Lamps
   - Stop Lamps
   - License Plate Lamps
   - Back-Up Lamps
   - Rear Turn Signal Lamps
   - Rear Side Marker Lamps
   - Reflex Reflectors
   - Center High Mounted Stop Lamp (if the second unit body blocks the view of the factory installed CHMSL, an alternate CHMSL must be added)
   - Front and Rear Identification Lamps (for vehicles over 2032 mm [80 in] in width)
   - Front and Rear Clearance Lamps (for vehicles over 2032 mm [80 in] in width)

   The items of lighting equipment on the cab of the pickup truck (including wiring and power supply) must not be removed, modified, replaced, or altered. Further, the second unit body installed by the vehicle alterer must not impair the visibility and conformity to the photometric requirements of the lamps and reflective devices installed on the cab of the pickup truck.

2. FOR VEHICLES WITH GVWR OF 10,000 LB. OR LESS ONLY:

   - The front end of the installed Second Unit Body must be located at least 76.2 mm [3.0 in] rearward of the rearmost point of the cab.
   - The weight of the installed Second Unit Body must not be greater than the weight calculated using the following formula:

     SUB max weight = Maximum Complete Vehicle Unloaded Vehicle Weight (UVW) from Table 1 – Original Equipment Manufacturer (OEM) Curb Weight as delivered + weight of permanently removed components.

     Weights of commonly removed components for reference:

     Pickup Box (Fully Trimmed)
     6.75’ SRW – 83.7 kg [184.5 lb.]
     8’ SRW – 91.2 kg [201.1 lb.]
     8’ DRW – 96.8 kg [213.4 lb.]
     Rear Step Bumper – 25.6 kg [56.4 lb.]
     Spare Wheel and Tire - See Table 2
     Spare Wheel Winch – 2.5 kg [4.5 lb.]
     Jack & Tools SRW – 5.5 kg [12.1 lb.]
     Jack & Tools DRW – 9.9 kg [21.8 lb.]

   - The height of the Center of Gravity of the installed Second Unit Body must not exceed the value specified (SUB Max Vertical CG Height) in Table 1 for the vehicle configuration. Figure 1 illustrates the SUB CG height reference location.
   - The factory installed Trailer Hitch must not be removed.
   - A rear-view camera that complies with FMVSS 111 S6.2 must be installed. See the latest version of SVE Bulletin Q-356 and the Super Duty (BBLB) for details.

3. The Vertical Center of Gravity of the Completed Vehicle (CG_v) in any loading condition must fall between the Maximum and Minimum limits as

NOTE:

CG Restrictions listed in this document are only intended to ensure the completed vehicle will meet applicable F/CMVSS standards. The location of vehicle CG is also a significant factor in the stability and handling of the vehicle. It is the responsibility of the vehicle alterer to ensure that the vehicle achieves acceptable stability and handling performance in all loading conditions.

determined by the equations in Table 1 for the vehicle configuration. It is recommended that the Vertical Center of Gravity of the completed vehicle (CGv) not exceed 48 inches from the ground in any loading condition.

4. Fuel fill components must be replaced with those listed below (available through your local Ford Dealer) and installed as specified in the Super Duty Incomplete Vehicle Manual (IVM) for Wide Frame Pickup Box Delete.

   - Fuel Fill Conversion Kit – part number
     HC3Z-9B149-E for Diesel
     LC3Z-9B149-C for Gas
   - Fuel Fill Cap may be re-used

5. Follow the guidance below if the OEM rear bumper is to be removed:

To maintain the stated towing capacity of the vehicle, the structural brackets and associated fasteners highlighted in Figure 2 must remain installed on both sides of the vehicle or be replaced with "equivalent" structure. If desired, the provided brackets may be trimmed as shown in Figure 2.

Other important information regarding second unit body (SUB) installation and compliance to safety regulations can be found in the Super Duty Incomplete Vehicle Manual (IVM). Further information that may be of use can be found in the applicable Body Builder Layout Book (BBLB) and in various SVE Bulletins, all of which are available online at https://fordbbas.com. Additional product related questions should be directed to the Body Builder Advisory Service at https://fordbbas.com under the "Contact Us" tab.

Table 1 – Super Duty Models Available for Pickup Box Removal

Model	Body Style	Drive	WB mm [in]	GVWR	Completed Vehicle Vertical CG Limits		SUB Max Vertical CG Height mm [in] (3)(4)	Max Completed Vehicle UVW kg [lb.] (5)	
					Maximum inches (1)(2)	Minimum inches (1)(2)		6.8L Gas 7.3L Gas	6.7L Diesel
F250 F350	Regular Cab	4x2 4x4	3596 [142]	4536 kg [10,000 lb.] or less	(3.85 * CG_h) - (1.43 * WB)	(3.85 * CG_h) - (2.51 * WB)	447 [17.6]	3547 [7819]	3515 [7749]
				Over 4536 kg [10,000 lb.]	(4.55 * CG_h) - (1.43 * WB)	(4.55 * CG_h) - (3.21 * WB)	N/A	3547 [7819]	3515 [7749]
	Super Cab	4x2 4x4	3759 [148]	4536 kg [10,000 lb.] or less	(3.85 * CG_h) - (1.43 * WB)	(3.85 * CG_h) - (2.51 * WB)	610 [24.0]	3547 [7819]	3905 [8608]
			4170 [164]	Over 4536 kg [10,000 lb.]	(4.55 * CG_h) - (1.43 * WB)	(4.55 * CG_h) - (3.21 * WB)	N/A	3547 [7819]	3905 [8608]
	Crew Cab	4x2 4x4	4059 [160]	4536 kg [10,000 lb.] or less	(3.85 * CG_h) - (1.43 * WB)	(3.85 * CG_h) - (2.51 * WB)	610 [24.0]	3547 [7819]	3905 [8608]
			4470 [176]	Over 4536 kg [10,000 lb.]	(4.55 * CG_h) - (1.43 * WB)	(4.55 * CG_h) - (3.21 * WB)	N/A	3547 [7819]	3905 [8608]

(1) Completed Vehicle Vertical CG (CG_v) as measured from the ground.
(2) Completed Vehicle Horizontal CG (CG_h), as measured from the Centerline of the Front Axle, and Wheelbase (WB) must be expressed in Inches when used in the equations.
(3) As measured from the top surface of the frame rail 12 – 18 inches behind the cab, see Figure 1.
(4) Applicable to vehicles with GVWR of 10,000 lb. or less.
(5) Applicable to vehicles with GVWR of 10,000 lb. or less with respect to F/CMVSS Standards. Provided for all vehicles to aid in calculations regarding US EPA and CARB Emissions guidance.

Table 2 – Super Duty Spare Wheel and Tire

Wheel Size	Wheel Weight kg [lb.]
17" Painted Steel (SRW)	16.9 [37.2]
18" Painted Steel	20.4 [44.9]
Tire Size	**Tire Weight kg [lb.]**
LT245/75R17	20.7 [45.5]
LT275/65R18	23.7 [52.2]
LT275/70R18	25.4 [55.9]
LT285/75R18	27.0 [59.4]

Figure 1 – SUB CG Height Reference Location

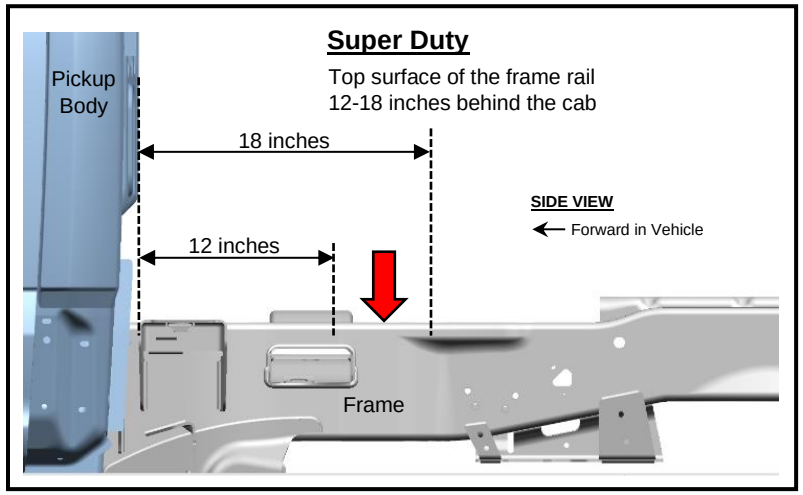
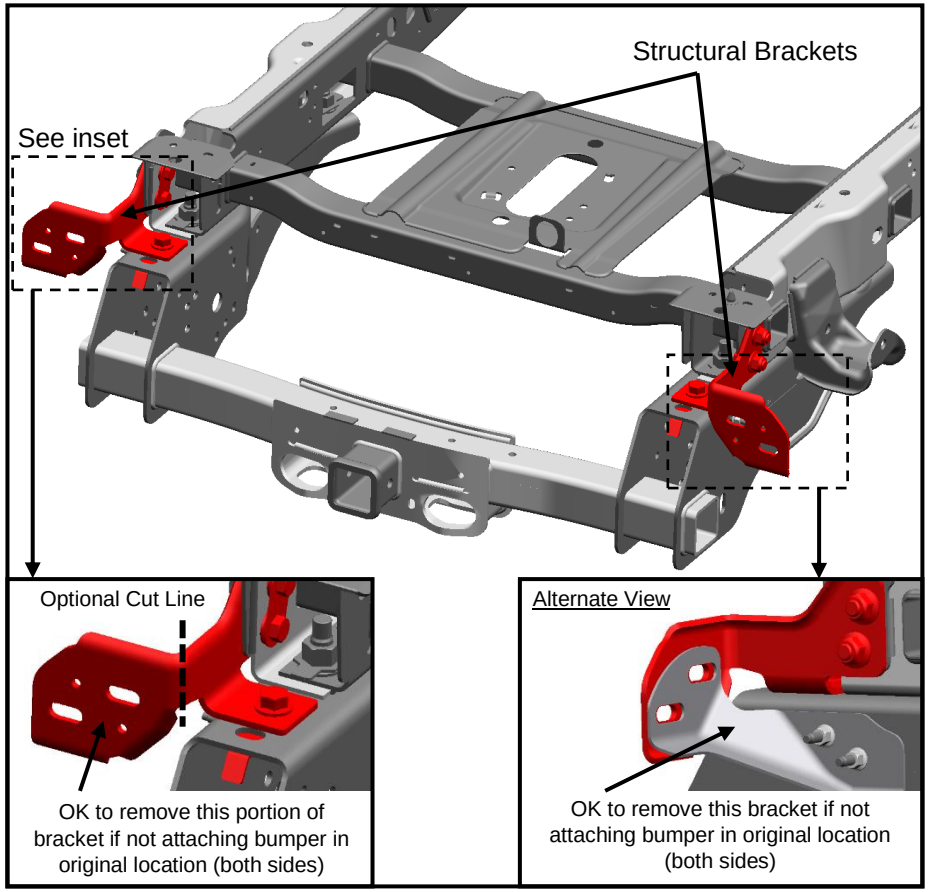


Figure 2 – Super Duty Structural Brackets


Structural Brackets
See inset
Optional Cut Line
OK to remove this portion of bracket if not attaching bumper in original location (both sides)
Alternate View
OK to remove this bracket if not attaching bumper in original location (both sides)

PART III - Information Concerning Exhaust and Evaporative Emissions Requirements

NOTE: The information herein is provided as guidance only; it is the responsibility of the vehicle alterer to assure compliance of the altered vehicle with the applicable emission requirements.

A copy of the appropriate Ford Owner's Manual and Warranty Guide must be installed in the altered pickup truck prior to sale to the ultimate purchaser to provide emissions system information and maintenance schedules.

Exhaust and Evaporative Emissions Requirements

As completed pickup trucks, Ford vehicles are certified to meet all applicable emissions requirements. For those Ford models authorized for pickup box removal, the alterer (or "secondary manufacturer") is responsible for determining continued conformity of the altered vehicle. Ford is providing the following information to assist the alterer in understanding their certification responsibilities.

Both the US Environmental Protection Agency (EPA) and California Air Resources Board (CARB) have provided guidance to secondary manufacturers on when they can rely on Ford's emissions certification and when they need to pursue their own certification. Additionally, Ford has requirements that must be met to maintain the original vehicle certification.

A. US Environmental Protection Agency Guidance

Guidance from the US Government is based, in part, on statements made by C. N. Freed of the Environmental Protection Agency (EPA) in a letter of July 13, 1979 to M. H. McBride, legal counsel for the Recreation Vehicle Industry Association. That letter explained EPA's policy concerning alterers of complete light-duty trucks in the context of EPA's Advisory Circular No. 64 – a March 7, 1977 publication that provides guidance on the need for separate certification of vehicles modified after original manufacture, but prior to sale and delivery to the ultimate purchaser. The maximum complete vehicle weight (UVW) provided in Table 1 is calculated in accordance with the definition of "maximum vehicle weight" provided in the July 13, 1979 letter. The letter provides that alterers of complete light-duty trucks need not re-certify such vehicles for emission control purposes if:

1. The altered vehicles conform, in all material respects, to the design specifications in the original manufacturer's application for certification, and
2. The weight of the altered vehicle, including the weight of fuel at nominal tank capacity, is no more than 500 lb. above the "maximum vehicle weight."

The letter further states that no frontal area restrictions will apply to alterers who comply with conditions (1) and (2) above. Alterers who do not comply with these conditions will be considered "manufacturers" under the Clean Air Act and will be required to assure that the altered vehicles are certified.

Questions concerning EPA's policies, with respect to alterers of completed vehicles, should be directed to the alterer's legal counsel or the Environmental Protection Agency.

B. California Air Resources Board Guidance

Guidance from the California Air Resources Board is contained in the September 9, 2021 amended *CALIFORNIA 2015 AND SUBSEQUENT MODEL CRITERIA POLLUTANT EXHAUST EMISSION STANDARDS AND TEST PROCEDURES AND 2017 AND SUBSEQUENT MODEL GREENHOUSE GAS EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR PASSENGER CARS, LIGHT-DUTY TRUCKS, AND MEDIUM-DUTY VEHICLES* document. To paraphrase Part I, section H, paragraph 1.3, "Scope of Certification":

The original manufacturer's emissions certification is still valid if the vehicle modifications stay within the following guidelines:

1. The vehicle alterer does not increase the vehicle's unloaded vehicle weight by more than 10% over the maximum curb weight, does not increase the frontal area by more than 10%, or does not provide a combination increase of weight plus frontal area of more than 14%.
2. No axle ratio, tire size or tire type changes are made that would increase the drivetrain ratio by more than 5%.
3. The vehicle emissions control system is not modified.

Questions regarding these requirements should be directed to the alterer's legal counsel or the California Air Resources Board.

C. Ford Guidance

The emissions certification is valid provided the completed vehicle meets the conditions in Table 3.

For use in calculating EPA and CARB limits:

- The "maximum" vehicle weight is provided in Table 1 (Max Completed Vehicle UVW).
- The Frontal Area of an unaltered Super Duty Pickup:
  - 3.80 m^2 [40.9 ft^2] for SRW
  - 4.28 m^2 [46.1 ft^2] for DRW

  NOTE: Frontal area of the vehicle includes the cab and second unit body. See the Frontal Surface Area Worksheet in the applicable Program BBLB for assistance with frontal area calculation.

Table 3 - Super Duty Emissions Restrictions for Pickup Box Removal

Engine	GVWR	Max Frontal Area m^2 [ft^2]	Max UVW kg [lb.]
6.8L FFV (1)	All	Use EPA and CARB Guidance	Use EPA and CARB Guidance
7.3L Gas	All	Use EPA and CARB Guidance	Use EPA and CARB Guidance
6.7L Diesel (2)	4536 kg [10,000 lb.] or less	3.81 [41.0]	4309 [9500]
	Over 4536 kg [10,000 lb.]	Use EPA and CARB Guidance	Use EPA and CARB Guidance

(1) Complete Pickups with 6.8L engine are certified as Flex Fuel capable, different from incomplete Pickup Box Deletes with 6.8L engine which are certified for Regular Gasoline only.
(2) Includes Standard and High Output variants.

PART IV – Information Concerning Body and Electrical System Modifications

BOX REMOVAL WITH SUPERCAB BODY STYLE

If a Second Unit Body wider than 2032 mm [80 in] is planned, consider installing Service Kit HC3Z-2821952-B on the rear door hinges. This will limit the SuperCab rear door opening angle to 90 degrees and prevent unintentional contact between the door and the SUB.

SECOND UNIT BODY MOUNTING

For important details regarding SUB mounting for pickup box removal vehicles, see the “Second Unit Body Mounting Guidelines” section in the Super Duty BBLB, which is available online at https://fordbbas.com, under “Publications”

ELECTRICAL SYSTEM

For important details regarding rear lighting, rear view camera, Pro Power Onboard, Advanced Driver Assist Systems and other features, refer to the latest version of SVE Bulletin Q-356 which is available online at https://fordbbas.com, under "Bulletins".

Change Control

2024MY Initial Release (25-Sep-23) – Changes from 2023MY Revision 2:

- All Information regarding Ranger Pickups has been removed as Pickup Box Removal is no longer supported for Ranger starting with the 2024 MY
- Added reference to Q-356 for Super Duty trim level / equipment restrictions and electrical system modifications (page 1)
- Updated reference weights of commonly removed parts (page 2)
- Revised Super Duty fuel fill components (page 3)
- Revised Ford Guidance on Emissions Requirements and added Table 3 (page 5)
- Added “ PART IV – Information Concerning Body and Electrical System Modifications” section (page 6)